Advocate

A publication of the Oak Ridge Site Specific Advisory Board – a federally appointed citizens panel providing independent recommendations and advice to DOE's Environmental Management Program

EM Work Integral to $7.2 Billion Tenn. Economic Boost

A recent report by the East Tennessee Economic Council shows DOE creates $7.2 billion in economic benefits and high-quality jobs annually for the state's economy through research, national security, and environmental cleanup missions in Oak Ridge.

Approximately 2,500 Oak Ridge employees focus on advancing EM's environmental cleanup. Their work is creating new economic opportunities for the community, and nowhere is that more evident that at the East Tennessee Technology Park (ETTP). That site is a featured case study in the council's latest report, which examined the impact of DOE's investment in Tennessee in fiscal year (FY) 2020.

After nearly two decades of work that removed 500 dilapidated, contaminated structures, EM completed major cleanup at ETTP last year. The effort transformed a former enrichment complex that presented a liability to the community into a marketable asset that is attracting new businesses and economic development.

EM has transferred nearly 1,300 acres at ETTP to the community to date for industrial development, including two transfers completed this summer. Both of those most recent transfers preserve areas with historical significance, including one of the site's main entryways — known as Portal 4. It's expected to be refurbished and repurposed for new office space.

Through EM's cleanup progress and transfers, ETTP is now a multi-use industrial park home to more than 20 businesses. Those companies will soon be joined by two new developments that will be the biggest at ETTP to date — a small-scale demonstration reactor and a medical isotope facility.

To facilitate the transition of Oak Ridge's East Tennessee Technology Park from EM to the community, utilities and infrastructure have been upgraded and transferred, including most electrical power, gas, and sanitary sewer systems.

Kairos Power, an advanced nuclear engineering company, will invest $100 million and create 55 jobs to deploy a demonstration reactor where a massive enrichment building once stood. The company plans to develop technology to provide carbon-free, affordable energy to the U.S. electricity market.

Coqui Radio Pharmaceuticals Corp. expects to begin operating a medical isotope production facility at ETTP in 2025, adding more than 200 high-paying jobs to the economy.

Planning also continues for a proposed general aviation airport at ETTP for private and corporate airplanes. This addition would provide another key piece of infrastructure to attract major industry. Companies like Coqui would benefit from using the airport to transport time-sensitive products, such as short-lived

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Reservation Update

To safely remove radioactive material from the Building 3010 reactor pool, workers lowered a large waste transfer liner into the pool and safely placed irradiated materials into the secure container. (above)

Next, they inserted the sealed liner into a second liner, (left) which was then loaded onto a specialty holding system (below) designed to ensure safe transportation for offsite disposal.

Crews Clean Up Reactor as Part of ORNL Modernization

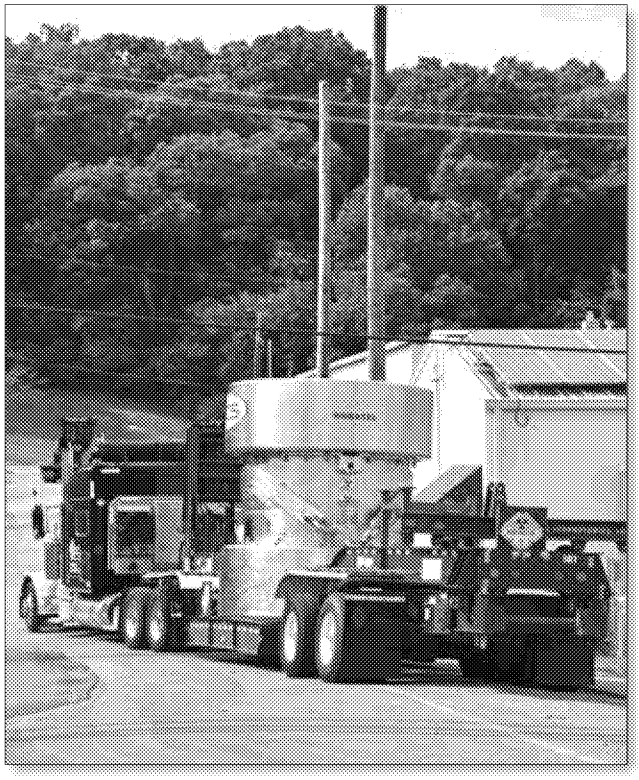
EM crews at ORNL have removed highly radioactive components from a reactor pool in a facility slated for demolition on the lab's central campus.

This effort was a crucial step that allowed EM to drain the 130,000 gallons in the 27-foot-deep pool and move forward with demolishing the Bulk Shielding Reactor, also known as Building 3010 — an aging, contaminated facility that no longer supports DOE's missions.

UCOR, EM's prime cleanup contractor in Oak Ridge, is leading the project. Crews have completed the reactor pool cleanup activities, and the next step will involve grouting the pool before the reactor facility can be demolished.

To remove the irradiated materials, UCOR moved a 6,100-pound waste transfer liner to a 21-foot depth in the pool. Workers placed more than 2,600 pounds of irradiated materials into the waste transfer liner and sealed it, lifted it from the pool, and placed it in a waste disposal liner. Workers then transferred that liner to an 88,000-pound transport cask, which was loaded and shipped for off-site disposal.

The Bulk Shielding Reactor was built in 1950 to support the government's research into using nuclear power in aircraft. It was one of the earliest research initiatives for peaceful applications of nuclear energy developed during the Manhattan Project. It also provided training opportunities for reactor operators until its closure in 1987. The building is one of 16 inactive research reactor and isotope facilities EM will remove from ORNL. The remediated areas will provide additional space for the lab's current and future research.



A view of a 21-acre portion of the Powerhouse Area at Oak Ridge. Several sites available for reuse at ETTP are some of the largest tracts of flat land available in our region, making them prime sites for large commercial enterprises to locate and bring jobs to the area.

EM Primes Powerhouse Site for Future Recreational Use

Once home to a massive power plant and oil tanks, the former Powerhouse Area at ETTP is now a clean, grassy field primed for future recreational use.

OREM and cleanup contractor UCOR recently backfilled and contoured a 21-acre section of the area previously used as a scrapyard. EM removed the 50,000 tons of scrap metal and contaminated soil there more than a decade ago.

The completed project directs stormwater to wetlands and the nearby Clinch River. Transforming the site, which is proposed for recreational development, required more than 6,000 truckloads of backfill and 2,000 truckloads of topsoil.

The project follows a similar one earlier this year in which workers placed a two-foot soil cover on an adjacent nine-acre area that housed oil tanks also associated with the former powerhouse. Employees used an innovative GPS system on both projects to ensure appropriate soil placement and contouring.

Given the large amount of soil required to complete the latest project, employees identified an innovative approach to avoid costs and enhance efficiency. They graded down a nearby ridge to access soil for recontouring. This eliminated costs associated with buying soil, enhanced efficiency by using trucks from UCOR versus an outside vendor, and created more useable acreage by reducing the grade of the adjacent ridge.

As with EM's other soil remediation projects at ETTP, completing this effort enables EM to transfer land from federal ownership for reuse by the community.

Several other excavation projects are underway to remove contaminated soil from various locations at the site and replace it with clean dirt — resulting in property available for industrial and recreational development. The latest remediation efforts are some of the final stages needed to reach EM's vision for the site as a multi-use industrial center, national park, and conservation area.

WIPP Marks 100th Waste Shipment from Oak Ridge

EM's Waste Isolation Pilot Plant (WIPP) recently marked a milestone after receiving its 100th waste shipment from Oak Ridge since shipments resumed in August 2017, following a fire and radiological events in the WIPP underground in 2014.

The shipments from the Transuranic Waste Processing Center (TWPC) were made up of 3,327 drums of legacy contact-handled (CH) transuranic (TRU) waste, representing a 50 percent reduction in the center's waste inventory.

The accomplishment highlights progress toward meeting the Tennessee Department of Environment and Conservation Site Treatment Plan milestones for TRU waste certification. The waste streams were generated by Oak Ridge National Laboratory (ORNL) and Nuclear Fuel Services, processed at TWPC, and certified for WIPP disposal by the Nuclear Waste Partnership Central Characterization Program (CCP).

CCP operations personnel at TWPC characterize the waste containers through a variety of techniques. Data generated from these processes are passed to the CCP project office in Carlsbad for additional validation and verification that each drum meets WIPP waste acceptance criteria, including requirements for chemical compatibility added in response to the 2014 fire.

CCP has worked to implement new requirements in the certified program at ORNL. Those requirements had to be in place before shipments could resume in August 2017. Since then, seven of the 25 CH-TRU ORNL waste streams have been approved for shipment. Most of those waste streams are small. The 10 largest ORNL waste streams make up about 90 percent of the center's inventory.

A large chunk of routine ORNL legacy TRU waste was disposed at WIPP in a previous CCP campaign prior to the most recent 100 shipments.

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STAFF
Editor: Shelley Kimel
Writer: Sara McManamy-Johnson
Review Board: Amy Jones, Shell Lohmann, Melyssa Noe, Leon Shields, Bonnie Shoemaker, Ben Williams

K-25 Memorandum of Agreement Amendments Change Future Plans

DOE and other Signatory and Invited Signatory parties have agreed to changes that will enable EM to complete its historic preservation activities at ETTP.

Originally constructed in 1944, Building K-25 was the largest structure in the world with a 44-acre footprint and carried an equally immense and important mission during the Manhattan Project by producing uranium for the world's first nuclear weapon. Yet despite its size and urgent work, the public would not learn of its existence in Oak Ridge until the end of World War II.

Uranium enrichment operations ceased in 1985, and the site was permanently shut down in 1987. Afterward, DOE committed to and began a massive environmental cleanup effort to transform the site into a multi-use private sector industrial park for the community. The majority of that work was completed in 2020 with the accomplishment of Vision 2020. DOE completed demolition of the K-25 building in 2013.

To ensure this site and its workers' vital roles in history are not forgotten, DOE has worked with consulting and signatory parties, including ORSSAB, to develop a Memorandum of Agreement (MOA) that selects the best means to commemorate those roles.

Consulting and signatory parties include the Advisory Council on Historic Preservation, the Atomic Heritage Foundation, the City of Oak Ridge, the Community Reuse Organization of East Tennessee (CROET), the National Park Service, the East Tennessee Preservation Alliance, the National Trust for Historic Preservation, the Oak Ridge Heritage and Preservation Association, and the Tennessee Historical Commission.

Since the K-25 MOA was first signed in 2003, it has been revisited several times through the years, and in 2012, a new MOA removed requirements to preserve the North Tower, retain parts of the K-25 building itself, and preserve

Attendees pack the lobby of the new K-25 History Center at the East Tennessee Technology Park in February 2020 for the center's grand opening celebration and ribbon cutting ceremony.

portions of the Roosevelt Cell. It also outlined plans for the K-25 History Center; plans that came to fruition with the history center's February 2020 grand opening. In 2019, the MOA was amended to better reflect changes including additional time needed for review of materials and cooperation with the Manhattan Project National Historical Park, which includes part of the K-25 site in its boundaries. The amendment also gave OREM an additional five years to construct an equipment building and viewing tower to complement the History Center and create 12 wayside exhibits and related self-guided tour brochures that would help take advantage of the partnership with the national park.

New amendments to the MOA, though, remove plans to construct an equipment building and revise plans for a viewing tower.

The changes, agreed upon by all parties in August, came about after a January 2021 meeting among Signatory and Invited Signatory Parties to work within the allotted budget. As a result of that meeting, the parties identified four key priorities to inform future historic preservation at the site. First, the primary focus of the project should be the physical site where K-25 once stood. Second, a visitor experience should be developed that provides a sense of the massive scale and scope of K-25 by including a view of the overall site and physical access to the K-25 footprint. Third, a proposed interpretive center is not a replacement that meets the intent or purpose of a Viewing Tower. Fourth, the Equipment Building does not provide an enhanced experience for visitors, as there are other exhibits in the area that provide excellent information regarding the K-25 equipment and its operations.

Given these priorities, plans for the Equipment Building will no longer be pursued, and the Viewing Tower, which had previously been planned as co-located with the Equipment Building, will instead be designed as a Viewing Platform near the K-25 History Center and the preservation footprint to show the size, scale and proportions of the K-25 building.

EM Renovations Aim to Ensure Reliable Waste Treatment Operations

EM is replacing extensive piping to extend the life of the Liquid and Gaseous Waste Operations (LGWO) system at Oak Ridge National Laboratory (ORNL).

Replacing the piping and completing other upgrades will alleviate the recurring need for maintenance and repair of the aging infrastructure built many decades ago, and ensure the system's reliability. Portions of the piping have rust and corrosion that need to be addressed.

LGWO contains two waste treatment systems that collect, treat, and reduce the volume of liquid waste across the laboratory. It encompasses more than 60 facilities and 27 miles of piping that process waste generated from cleanup operations, research and development labs, radiochemical pilot plants, and nuclear reactors.

The $18 million project will replace more than a mile of above-ground piping and valves, making the system more efficient and reliable, helping avoid the possibility of disrupting ongoing ORNL operations.

"This infrastructure has been in operation for decades, providing essential disposition of various wastes generated at the site," said Nathan Felosi, the ORNL portfolio federal project director for OREM. "Completing this project ensures the important research and cleanup missions at ORNL can continue without incident or interruption."

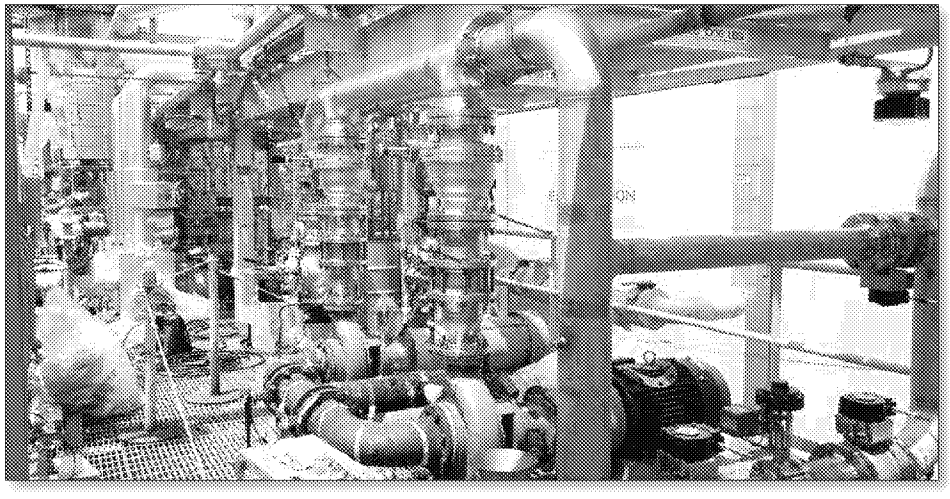
ORSSAB members learned about the needed renovations during a tour of the LGWO facility in 2019. From left, ORSSAB members Leon Shields, Shell Lohmann, and Harriett McCurdy, and OREM's Chuck Curtis and Bill McMillan.

UCOR, EM's prime contractor in Oak Ridge, is leading the effort and coordinating closely with ORNL to ensure LGWO's reliability. Together, EM and UCOR have conducted engineering evaluations of the systems and supporting infrastructure, and are implementing upgrades based on the results of those studies.

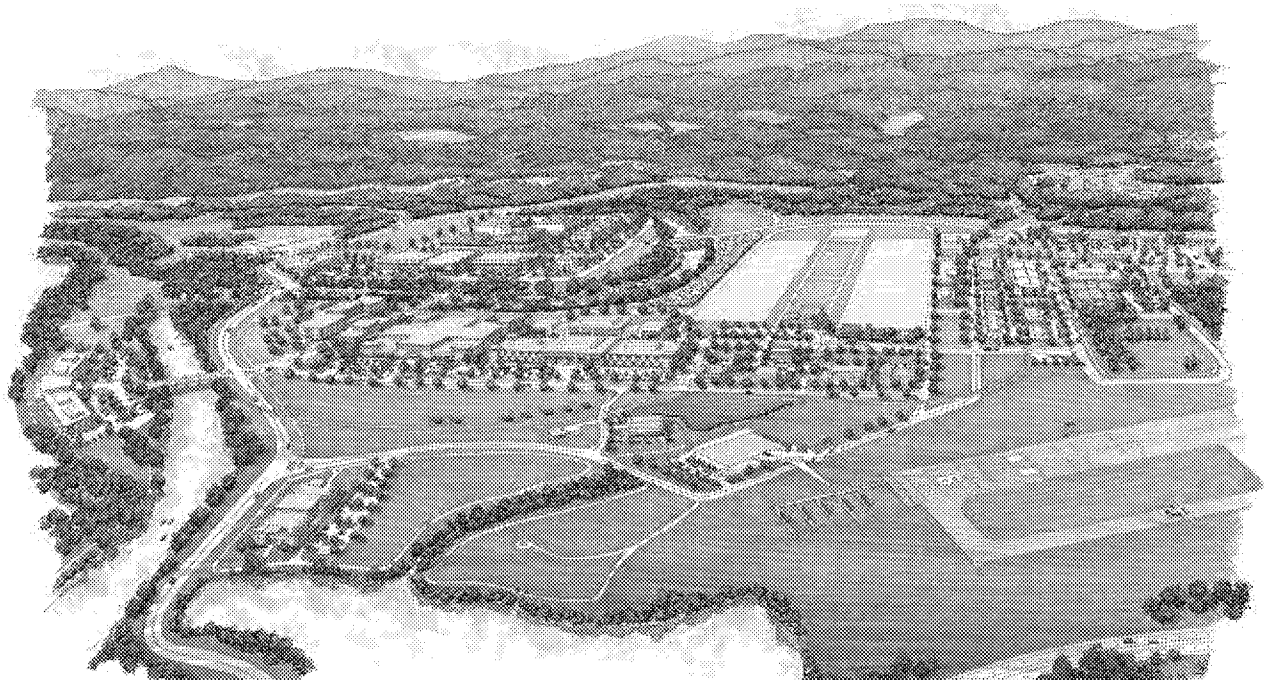
This project is anticipated to be complete within two years and follows other recent investments to upgrade and maintain critical waste treatment infrastructure. EM has identified other near- and long-term actions to maintain safe, reliable operations, such as upgrading LGWO's digital control system.

A major project involves constructing a new Process Waste Pre-Treatment Facility, which will reduce the need for storage of low-level liquid waste. The new facility will accept that waste directly instead of diverting it to storage tanks, which is the process at the current facility.

Other efforts include building an evaporator that reduces liquid waste volume and replacing a diesel generator that powers pumping stations if power is interrupted.



A view of the contrast between piping that is decades old — the rusted brown pipes in the foreground — and new piping workers are installing in the Liquid and Gaseous Waste Operations system at Oak Ridge National Laboratory.



An artist's rendering of ETTP's potential as a fully realized multi-use industrial park. EM is working to complete all remaining cleanup at the site and transfer the land to the community for reuse.

Economy

(Continued from page 1)

radioisotopes used in medicine.

The airport would be located on 200 acres at ETTP that EM is scheduled to transfer to the City of Oak Ridge. If approved, the airport would be built on land that once housed the Centrifuge Complex

"Our cleanup at ETTP has been on a historic scale, and now all of those efforts, in addition to the planning and strategy to reuse the site, are paying dividends," said Dave Adler, director of the Oak Ridge Office of Environmental Management's (OREM) quality and mission support division. "The site has become a regional asset with new businesses, educational facilities, and beautiful greenways."

As economic development continues at ETTP, EM contractor UCOR is set to remove building slabs and excavate remaining contaminated soil. Those efforts are completing EM's mission at the site and paving the way for the cleanup program to transfer additional land to the community.

About 100 acres at ETTP are supporting historic preservation efforts, including a Manhattan Project National Historical Park location and the K-25 History Center, which opened to the public last year.

EM also designated nearly 3,500 acres for conservation, providing habitats for wildlife and hiking trails, bike paths, canoe launches, and other activities for residents and tourists.

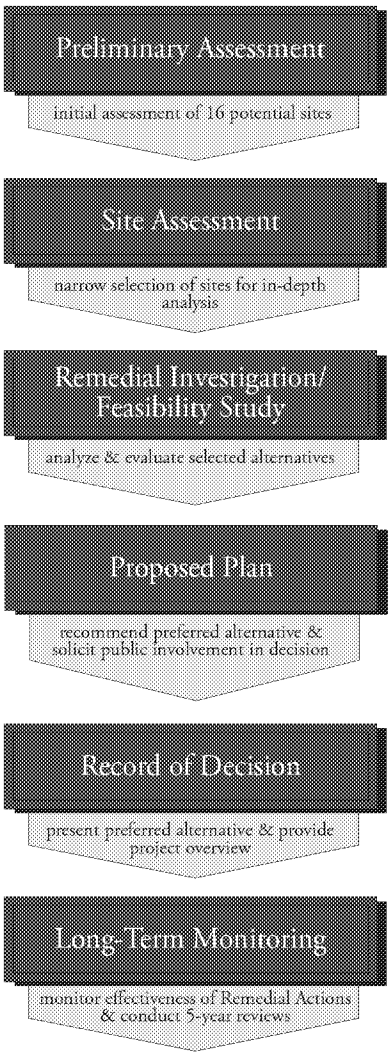
Large tracts of land, such as the former Centrifuge Complex site at ETTP, pictured, offer ideal locations for industrial development.

Watch the Video

Scan this QR code using your cellphone or tablet to learn more about EM's impact in Tenn.

OREM, EPA & TDEC to Offer Public Engagement on EMDF

CERCLA Decision-Making Process for EMDF



OREM's mission is to protect the region's health and environment, enable vital science and national security missions, and make clean land available for future use. Achieving this mission involves removing deteriorated infrastructure and environmental contaminants at Y-12, ORNL, and ETTP.

These projects generate a large volume of building debris and soil. OREM uses an onsite disposal facility for most of this material, while sending hazardous and highly radioactive waste out of state for permanent disposal. The current onsite facility will reach full capacity in the near future, and a new onsite facility, the Environmental Management Disposal Facility (EMDF), is needed to maintain progress and complete Oak Ridge's cleanup.

OREM has worked collaboratively with the EPA and the state of Tennessee on a science-driven approach that ensures a safe and protective design for EMDF. Those details are included in the draft Record of Decision (ROD) that was submitted to regulators in July.

This phase of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) regulatory process follows the previously released Proposed Plan, community education and outreach campaign, and a 120-day public comment period that concluded in 2019. The draft ROD responds to all the comments OREM received during that time. As this project continues through the approval process, there will be additional opportunities for public involvement this fall. OREM, EPA, and the State of Tennessee are working to offer fact sheets and a public meeting in the coming months. SSAB will share that date when it is available.

EMDF Activities Timeline

◊ OREM has worked with regulators on the EMDF decision process since 2011; offered briefings & public events since 2015.

◊ EMDF Remedial Investigation/Feasibility Study was developed between 2011 - 2017.

◊ Proposed Plan, approved by EPA & TDEC, released for public comment in Sept. 2018.

◊ Offered 120-day public comment period, ending Jan. 2019, to accept input from community. Included public hearing & 3 public information sessions.

◊ Submitted draft ROD to EPA & TDEC in July 2021. It includes more details about the project & responses to all public comments.

What's Next

◊ OREM will share fact sheets for public comment about the facility's waste acceptance criteria, site selection, and wastewater discharge in Fall 2021.

Diversity

(Continued from page 8)

of the boards to promote diversity in many areas, including age, gender, race, education, experience, and geographic location. This diversity enhances creativity and effectiveness of the boards and amplifies voices of the communities surrounding EM sites.

"The increased time spent focusing on diversity ensures community members from underrepresented groups will have a seat on the board," EM SSAB Designated Federal Officer Kelly Snyder said. "Every voice matters, and we want to ensure all sects of the community have the opportunity to voice their perspectives regarding the important work we do."

In addition to the community-focused EM Site-Specific Advisory Board, the Environmental Management Advisory Board provides independent and external advice, information, and recommendations directly to the EM Assistant Secretary on corporate issues related to accelerated site cleanup and risk reduction.

Advocate
Oak Ridge Site Specific Advisory Board
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EM SSAB Diversity Efforts Aim to Enhance Creativity & Effectiveness

EM is working to implement President Biden's executive order to promote diversity, equity, inclusion, and accessibility in the federal workforce as well as the cleanup program's federal advisory committees.

The EM Site-Specific Advisory Board (EM SSAB) is an important tool for EM to obtain public input for community-specific solutions. The eight local boards organized under the umbrella charter of the EM SSAB -- including ORSSAB -- develop recommendations for field managers at eight of EM's field locations.

Community input is enhanced by a board that closely reflects a diversity of viewpoints from the site's region. In support of Executive Order 14035, EM is looking to pursue opportunities to increase diversity, equity, inclusion, and accessibility on advisory boards.

Extensive site-specific recruitment efforts help populate diverse, community-focused advisory boards. Recruitment efforts include outreach to many local women's, minority, young professionals, and labor organizations, as well as outreach in local newspapers, community centers, libraries, and colleges. Local board staff are encouraged to get creative with recruitment methods to increase interest, using social media and virtual outreach.

OREM will be working closely with the headquarters advisory board team as it begins preparing for annual recruitment for ORSSAB over the next few months. For example, OREM is particularly interested in including representation from members of Oak Ridge's Scarboro community.

However, residents of the multi-county area surrounding the DOE's operations in Oak Ridge are also welcome and encouraged to apply at any time during the year outside of formal recruitment as well. Information on membership and application materials are available on the board's website, www.energy.gov/orssab and contact information for board staff is also listed to assist with any questions.

EM's advisory board team keeps a close eye on the demographic makeup

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Oak Ridge Site Specific Advisory Board
P.O. Box 2001, EM-90
Oak Ridge, Tennessee 37831
www.energy.gov/ORSSAB
orssab@orem.doe.gov

UPCOMING MEETINGS

Meetings are held at 6 p.m. virtually until further notice. Email orssab@orem.doe.govat least 1 week prior to attend or comment.

Board: TBD

EM & Stewardship Committee: TBD

ABBREVIATIONS

CERCLA – Comprehensive Environmental Response, Compensation, and Liability Act, also known as Superfund
DOE – Department of Energy
EM – Environmental Management
EMWMF – Environmental Management Waste Management Facility
ETTP – East Tennessee Technology Park
OREM – Oak Ridge Environmental Management
ORNL – Oak Ridge National Laboratory
ORR – Oak Ridge Reservation
ORSSAB – Oak Ridge Site Specific Advisory Board
TDEC – Tennessee Department of Environment & Conservation
UCOR – URS | CH2M Oak Ridge
Y-12 – Y-12 National Security Complex

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